



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Atsushi YAMAGUCHI et al.

Group Art Unit: 1773

Application No.: 09/942,678

Examiner: N. Uhler

Filed: August 31, 2001

Docket No.: 110533

For: COBALT-NICKEL-IRON ALLOY THIN FILM AND METHOD OF FORMING THE SAME, AND THIN-FILM MAGNETIC HEAD AND METHOD OF MANUFACTURING THE SAME

REQUEST FOR RECONSIDERATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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Sir:

In reply to the March 5, 2003 Office Action, reconsideration of the rejection is respectfully requested in light of the following remarks.

Claims 1-8 are pending. Claims 2-4 and 6-8 are withdrawn from consideration as drawn to a non-elected invention. Applicants respectfully submit that the Confirmation of Telephone Election filed on March 3, 2003 satisfies the Office Action requirement that affirmation of the telephonic election made March 3, 2003 be made in reply to this Office Action.

I. Restriction Requirement

Claims 1-8 are subject to a Restriction Requirement. Applicants elected Group I, claims 1 and 5; accordingly, claims 2-4 and 6-8 are withdrawn from consideration. Applicants respectfully traverse the Restriction Requirement.

The Restriction Requirement is traversed because the claims of Groups I and II are drawn to sufficiently inter-related inventions to warrant examination thereof in a single application. Group I is drawn to a magnetic thin film and magnetic head. Group II is drawn to a process for making a magnetic thin film or magnetic head.

Where product and process claims are presented in the same application, Applicant may be called upon under 35 U.S.C. §121 to elect claims to either the product or process. MPEP §821.04. However, in the case of an elected product claim, rejoinder will be permitted when a product claim is found allowable and the withdrawn process claim depends from or otherwise includes all the limitations of an allowed product claim. Id.

In the present application, the method claims of Group II include all of the limitations of the product of Group I. In particular, all of the limitations of the independent product claims 1 and 5 of Group I are incorporated into the methods of Group II.

Since the method claims of Group II include the limitations of the product claims of Group I, the method claims must be rejoined with the product claims once the product claims are allowed. Thus, to streamline prosecution and avoid delay, the Restriction Requirement should be withdrawn to permit concurrent examination of all of the pending claims. Applicants respectfully request reconsideration and withdrawal of the Restriction Requirement.

The Restriction Requirement is also traversed because the subject matter of Groups I and II is sufficiently related that a search of any one group would encompass a search of the subject matter of the remaining group. The prior art revealed by a search of the magnetic thin film and magnetic head of Group I would overlap the prior art revealed by a search of the method for making such a magnetic thin film and magnetic head. Thus, although the classifications may be different, the subject matter is sufficiently overlapping that concurrent search of all of the claims does not create a serious burden.

If the search and examination of an entire application can be made without serious burden, the Examiner must examine it on the merits, even though it includes claims to distinct or independent claims. MPEP §803. Applicants respectfully submits that there would be no serious burden on the Patent Office to examine all of the present claims because the subject matter of Groups I and II is sufficiently related that a search of any one group would encompass the search of the subject matter of the remaining groups. Thus, the Restriction Requirement is improper and should be withdrawn.

In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the Restriction Requirement.

II. Rejection Under §102

The Office Action rejects claims 1 and 5 under 35 U.S.C. §102(e) over U.S. Patent 6,120,918 to Osaka et al. Applicants respectfully traverse this rejection.

In order to anticipate a claimed invention, the reference must disclose, in specific embodiments, all of the limitations of the claimed invention. That is, a prior art reference anticipates the claimed invention only where all claimed elements or steps of the claimed invention are disclosed, either expressly or inherently, in the reference. Scripps Clinic & Research Foundation v. Genentech, Inc., 927 F.2d 1565, 1576, 18 USPQ2d 1001, 1010 (Fed. Cir. 1991); In re Marshall, 577 F.2d 301, 198 USPQ 344 (CCPA 1978). In the present application, Osaka does not disclose, in specific embodiments, each and every limitation of the claimed invention, and thus cannot anticipate the claimed invention.

Claim 1 is drawn to a cobalt-nickel-iron alloy thin film containing 60 to 75 weight % cobalt, 10 to 20 weight % nickel, and 10 to 20 weight % iron and having a crystal structure that is a mixture of a body-centered cubic structure phase and a face-centered cubic structure phase, wherein I_b/I_f is in the range of 0.3 to 0.7 inclusive where I_b represents the intensity of

an X-ray diffracted from a (110)-plane of the body-centered cubic structure and I_f represents the intensity of an X-ray diffracted from a (111)-plane of the face-centered cubic structure.

First, the ranges of claim 1 only correspond to those of Osaka when the weight percent of iron in the cobalt-nickel-iron thin film is 20%. However, as shown in figure 6 of Osaka, every cobalt-nickel-iron thin film disclosed in the reference that exhibits both face-centered cubic and body centered cubic crystal structures contains more than 20 weight % of iron. Thus, Osaka does not disclose cobalt-nickel-iron thin films having the composition and structure of the cobalt-nickel-iron thin films of claim 1.

Further, as is illustrated by Figure 14 of the specification, the values of I_b/I_f can differ even if the composition is the same. Figure 14 shows the relationship between the pH of the plating bath in film formation and the I_b/I_f value observed in samples having substantially the same composition. The I_b/I_f value of a composition can be changed by controlling the pH of the plating bath. Thus, Osaka does not disclose cobalt-nickel-iron thin films having both the composition and the I_b/I_f values required by claim 1.

Thus, Osaka does not anticipate claim 1 because Osaka does not disclose all of the limitations of claim 1.

Similarly, Osaka does not anticipate claim 5. Claim 5 is drawn to a magnetic film head comprising, in part, a cobalt-nickel-iron alloy thin film containing 60 to 75 weight % cobalt, 10 to 20 weight % nickel, and 10 to 20 weight % iron and having a crystal structure that is a mixture of a body-centered cubic structure phase and a face-centered cubic structure phase, wherein I_b/I_f is in the range of 0.3 to 0.7 inclusive where I_b represents the intensity of an X-ray diffracted from a (110)-plane of the body-centered cubic structure and I_f represents the intensity of an X-ray diffracted from a (111)-plane of the face-centered cubic structure.

For at least the reasons that Osaka does not anticipate claim 1, Osaka likewise does not anticipate claim 5. Osaka does not disclose a magnetic film head comprising, in part,

cobalt-nickel-iron thin films having both the composition and the Ib/If values required by claim 5.

For at least these reasons, Osaka does not anticipate claims 1 and 5. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

III. Unexpected Results

At page 5, paragraph 12, of the Office Action, Applicants were requested to point out any unexpected results provided by the claimed invention. Although not necessary to address the §102 rejection, addressed in detail above, Applicants provide the following comments in the interest of advancing prosecution.

According to the claimed invention, the CoNiFe thin film composition as specifically defined in claims 1 and 5 can attain a saturation flux density as high as 1.7 T or more. See specification at page 21, line 21 to page 22, line 17. Furthermore, the claimed invention can provide a more preferred soft magnetic property or low coercive force, due to the CoNiFe thin film having a structure that is a mixture of bcc and fcc structure phases. See specification at page 3, lines 7-19 and page 21, line 21 to page 22, line 17.

In addition to the above-described advantageous effects, the claimed invention provides such an unexpected result that a high saturation flux density of 1.7 to 1.8 T can be achieved consistently because the Ib/If value is set to be within the range of 0.3 to 0.7. See specification at page 29, line 10 to page 30, line 4, and Fig. 13. Such a benefit of the specific Ib/If value range is not taught or suggested by Osaka.

Accordingly, the claimed invention provides a significant and unexpected result, which is not taught or suggested by Osaka.

IV. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claim 1 and 5 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Date: June 5, 2003

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